BRUHAT BANGALORE MAHANAGARA PALIKE

Name of the Work : Improvements to Roads,drains,footpath and park in ward no.08,Bytarayanapura Division (Package includes 11 Works of Rs 1010 lakhs)

BYATARAYANAPURA DIVISION

2nd PART BILL

TEST REPORTS

TEJUS CONSULTANTS
CONSULTING ENGINEERS AND DESIGNERS
No.58 MIG, 6th Cross, 3rd Main
1st Stage, Basaveshwaranagar
Bangalore-560079
☎ 080 - 23287532
email: tejusconsultants@gmail.com

TEJUS
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No. TC / BBMP / BYT PURA DIVISION/ 094 / 17 – 18

To
The Executive Engineer
Byatarayanapura Divison
Bruhat Bangalore Mahanagara Palike
Bangalore – 560 092

Date:

Dear Sir

Sub: **Second RA bill for the work of Improvements to Roads, Drains, Footpath and Park in ward no.08,Bytarayanapura Division (Package includes 11 Works of Rs 1010 lakhs)**

In reference to the above subject, this is to bring to your kind notice that we have scrutinized the **Second RA bill** submitted by Sri.Pramodh M/s Karthik Enterprises, No. 123, Aiswaraya, 3rd Cross, Ramannaa Garden, Vidyaranyapura, Bangalore - 97, towards the above said work and arrived at an amount of **Rs. 2,23,44,123.00 (Rupees Two Crore Twenty Three Lakh Forty Four Thousand One Hundred Twenty Three only**). The work has been completed satisfactorily.

This is for your kind information.

Thank you and assuring you the best of our Services at all the times

TEJUS CONSULTANTS

For Tejus Consultants
(Nischal M)

TEJUS CONSULTANTS
No. 58, 3rd main, 6th Cross, 1st Stage KHB Colony, Basaveshwaranagar, Bangalore - 560079, O : +91 80 23287532, tejusconsultants@gmail.com

CIVIL XPERTS
ISO 9001:2015
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59695
Tele/Fax : 080 2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CEXTC/BBMP/QC/2017-18 Date: 17.12.2017

TEST RESULTS OF PHYSICAL PROPERTIES OF REINFORCEMENT STEEL

Client : **Bruhat Bangalore Mahanagar Palike**

Name of Work : Improvements to Roads,Drains,Footpath and Park in ward No.08,Bytarayanapura Division (Package includes 11 Works of Rs 1010 lakhs).

Contractor : M/s Karthik Enterprises

Sample Identification : 8mm, 10mm, 12mm TMT Bars

Technical Reference : IS 1786:2008, IS 1608:2005, IS 1599:1985 (Reaffirmed 2006)

Date of test : 17.12.2017

S.No	Brand	Nominal size (dia in mm)	Mass per metre (kg/metre)	TENSILE STRENGTH		
				0.20 % proof stress/ yield stress ($N/mm^{2)}$	Tensile strength ($N/mm^{2)}$	Elongation, percent on gauge length
1	Fe 500	8	0.399	510	553	16
2	Fe 500	10	0.620	536	569	18
3	Fe 500	12	0.887	554	580	19

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

For

Authorised

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Project	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/s Karthik Enterprises

AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Proposed Use	DBM	Date of Sampling	06/01/2018
Sample Locatio	At plant	Date of Testing	06/01/2018

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	370.00	360.00	350.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	282.00	278.00	270.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	88.00	82.00	80.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	23.78	22.78	22.86	
5	Average Aggregate impact value	(%)	23.14			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Ab W.8

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Consultant's Representative

TEJUS CONSULTANTS

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Project	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/s Karthik Enterprises

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	DBM	Proposed Use	DBM
Sample Location	At plant	Date of Sampling	06/01/2018
		Date of Testing	06/01/2018

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	8120	1028	7092	456
31.5	25.0	4510	562	3948	318
25.0	20.0	2410	504	1906	254
20.0	16.0	1260	266	994	242
16.0	12.5	622	262	360	94
12.5	10.0	244	80	164	52
10.0	6.3	106	42	64	36
Total		17272	2744	14528	1452

Results

Flakiness Index(%):	15.89
Elongation Index(%):	9.99
Combined FI+EL (%)	25.88

No.W.8

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Consultant's Representative

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Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	06/01/2018
Type of Mix	:	DBM
Sample I/D	:	1

GRADATION FOR DBM
(As per MORT&H 500-10,Grading-2)

Sample Location:	At plant	Date of Sampling:	06/01/2018
		Date of testing:	06/01/2018
Type of material & Purpose:	DBM	Oven Dry Wt.(gms):	1500.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
37.50	0	0	0.00	100.00	100.00
26.50	100	100	6.67	93.33	90-100
19.00	130	230	15.33	84.67	71-95
13.20	260	490	32.67	67.33	56-80
4.750	358	848	56.53	43.47	38-54
2.360	200	1048	69.87	30.13	28-42
0.300	310	1358	90.53	9.47	7-21
0.075	76	1434	95.60	4.40	2-8
Pan	66				
Total	1500.0				

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Consultant's Representative

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BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE BITUMINOUS MACADAM MIX

Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	08/01/2018
Type of Mix	:	DBM
Sample I/D	:	1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	910	926
2. Weight of Mixture after extraction, g	871	886
3. Weight of Bitumen	39	40
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.00	3.70
6. Weight of fines, g	2.00	1.70
7. Weight of Bitumen & fines	41.00	41.70
8. Bitumen content in %	4.51	4.50
9. Average Bitumen content in %	**4.50**	
10. Minimum Bitumen content in %	**4.50**	

GRADATION FOR DBM AFTER EXTRACTION

(As per MORT&H 500-10,Grading-2)

Sample Location:	At site	Date of Sampling:	08/01/2018
		Date of testing:	08/01/2018
Type of material & Purpose:	DBM	Oven Dry Wt.(gms):	871

IS Sieve size in mm	Weight retained	Cummulative weight retained	Cummulative % of retained	Cummulative % of passing	Specification limits
37.50	0.0	0.0	0.00	100.00	100.00
26.50	82.0	82.0	9.41	90.59	90-100
19.00	120.0	202.0	23.19	76.81	71-95
13.20	126.0	328.0	37.66	62.34	56-80
4.750	114.0	442.0	50.75	49.25	38-54
2.360	132.0	574.0	65.90	34.10	28-42
0.300	150.0	724.0	83.12	16.88	7-21
0.075	116.0	840.0	96.44	3.56	2-8
Pan	31.0				
Total	871.0				

Assistant Executive Engineer,
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Yelahanka Zone, B.B.M.P.,
Bangalore.

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Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	08/01/2018
Type of Mix	:	Tack coat
Sample I/D	:	1

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.785	0.775
Final weight of plate after application of tack Coat (c)	Kg	0.808	0.799
Weight of tack Coat (d=c-b)	Kg	0.023	0.024
Rate of spread of tack coat	Kg/sq.m	0.256	0.267
Average	Kg/sq.m	0.261	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

ward-8

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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Consultant's Representative

Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	08/01/2018
Type of Mix	:	Tack coat DBM
Sample I/D	:	2

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.810	0.800
Final weight of plate after application of tack Coat (c)	Kg	0.833	0.823
Weight of tack coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

AEW-8
Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS CONSULTANTS
Consultant's Representative

Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	08/01/2018
Type of Mix	:	Tack coat DBM
Sample I/D	:	3

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.785	0.810
Final weight of plate after application of tack Coat (c)	Kg	0.808	0.833
Weight of tack coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

TEJUS CONSULTANTS
Consultant's Representative

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Project	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/s Karthik Enterprises

AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Proposed Use	BC	Date of Sampling	08/01/2018
Sample Location	At plant	Date of Testing	08/01/2018

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	375.00	375.00	380.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	285.00	282.00	286.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	90.00	93.00	94.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	24.00	24.80	24.74	
5	Average Aggregate impact value	(%)	24.51			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Consultant's Representative

AEW-8

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Project	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/s Karthik Enterprises

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	BC	Proposed Use	BC
Sample Location	At plant	Date of Sampling	08/01/2018
		Date of Testing	08/01/2018

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	910	92	818	84
16.0	12.5	1000	112	888	130
12.5	10.0	562	82	480	76
10.0	6.3	520	60	460	60
Total		2992	346	2646	350

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	11.56
Elongation Index(%):	13.23
Combined FI+EL (%)	24.79

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Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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Name of Work	:	**Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli**
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	08/01/2018
Type of Mix	:	BC
Sample I/D	:	BC1

GRADATION FOR BC
(As per MORT&H 500-18,Grading-2)

Sample Location:	At plant	Date of Sampling:	08/01/2018
		Date of testing:	08/01/2018
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	1200.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	100	100.0	8.33	91.67	79 - 100
9.50	98	198.0	16.50	83.50	71 - 95
4.75	210	408.0	34.00	66.00	53 - 71
2.360	162	570.0	47.50	52.50	42 - 58
1.180	110	680.0	56.67	43.33	34 - 48
0.600	152	832.0	69.33	30.67	26 - 38
0.300	126	958.0	79.83	20.17	18 - 28
0.150	78	1036.0	86.33	13.67	12 - 20
0.075	62	1098.0	91.50	8.50	4 - 10
Pan	102.0				
Total	1200.0				

Assistant Executive Engineer.
Kodigehalli Sub Division.
Yelahanka Zone, B.B.M.P.
Bangalore.

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Consultant's Representative

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	09/01/2018
Type of Mix	:	BC
Sample I/D	:	BC1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	865	875
2. Weight of Mixture after extraction, g	817	826
3. Weight of Bitumen	48	49
4. Weight of filter paper before extraction, g	2.00	1.60
5. Weight of filter paper after extraction, g	4.20	3.50
6. Weight of fines, g	2.20	1.90
7. Weight of Bitumen & fines	50.20	50.90
8. Bitumen content in %	5.80	5.82
9. Average Bitumen content in %	**5.81**	
10. Minimum Bitumen content in %	**5.80**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-18,Grading-2)

Sample Location:	At site	Date of Sampling:	09/01/2018
		Date of testing:	09/01/2018
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	817.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	86	86.0	10.53	89.47	79 - 100
9.50	98	184.0	22.52	77.48	71 - 95
4.75	78	262.0	32.07	67.93	53 - 71
2.360	122	384.0	47.00	53.00	42 - 58
1.180	102	486.0	59.49	40.51	34 - 48
0.600	86	572.0	70.01	29.99	26 - 38
0.300	70	642.0	78.58	21.42	18 - 28
0.150	64	706.0	86.41	13.59	12 - 20
0.075	66	772.0	94.49	5.51	4 - 10
Pan	45.0				
Total	817.0				

A/c W-8

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Consultant's Representative

TEJUS CONSULTANTS

Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	09/01/2018
Type of Mix	:	Tack coat
Sample I/D	:	1

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	**Unit**	**Test No**	
		1	**2**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.825	0.810
Final weight of plate after application of tack Coat (c)	Kg	0.848	0.834
Weight of tack Coat (d=c-b)	Kg	0.023	0.024
Rate of spread of tack coat	Kg/sq.m	0.256	0.267
Average	Kg/sq.m	0.261	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Consultant's Representative

Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	09/01/2018
Type of Mix	:	Tack coat
Sample I/D	:	2

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.800	0.825
Final weight of plate after application of tack Coat (c)	Kg	0.823	0.848
Weight of tack Coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

W.8

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

W.08

Consultant's Representative

Name of Work	:	Improvements to Road,Drain and Footpath in LKR nagara main road and cross roads in ward No.8 Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Karthik Enterprises
Date of Testing	:	09/01/2018
Type of Mix	:	Tack Coat
Sample I/D	:	3

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.090	0.090
Initial Wt of empty Plate (b)	Kg	0.775	0.785
Final weight of plate after application of tack Coat (c)	Kg	0.798	0.809
Weight of tack Coat (d=c-b)	Kg	0.023	0.024
Rate of spread of tack coat	Kg/sq.m	0.256	0.267
Average	Kg/sq.m	0.261	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS CONSULTANTS

Consultant's Representative

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TEST REPORT

Clients	Bruhath Bangalore Mahanagara Palike
Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Karthik Enterprises.
Total Weight ir	3000

SIEVE ANALYSIS

Type of Material	40 mm down size			**Proposed Use**	DRAIN
Sample Location	At Site/Plant			**Date of Sampling**	15/12/17
				Date of Testing	15/12/17
IS Sieve Size	**Weight Retained in gm**	**Cum. Weight Retained in gm**	**Cumulative Weight Retained in %**	**Cumulative Weight Passing in %**	**Specific Limits as per IS 383-1970 (RA-2007) % of Passing For Graded Aggregate of Nominal Size**
80.00mm	**0**	**0**	**0.00**	100.00	100
63.00mm	**0**	**0**	**0.00**	100.00	-
40.00mm	**95**	**95**	**3.17**	96.83	95-100
20.00mm	**1325**	**1420**	**47.33**	52.67	30-70
10.00mm	**980**	**2400**	**80.00**	20.00	10-35
4.75mm	**480**	**2880**	**96.00**	4.00	0-5
Pan	**120**	**3000**	**100.00**	0.00	

Remarks : Satisfactory / Not Satisfactory

W.08

Consultant's Representative

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
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Test Report on Cement

Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.
Client	Bruhat Bangalore Mahanagar Palike.
Consultant	TEJUS CONSULTANTS.
Contractor	M/s Karthik Enterprises.
Sample ID	Cement
Date of Sample Tested	15/12/17
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	39 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	350 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	4mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	25 % to 35

W.8

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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TEST REPORT	
Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Karthik Enterprises.

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	Fine aggregate (River Sand/ M sand)	**Proposed Use**	concrete
Location/Source	At Site/Plant	**Date of Sampling**	15/12/17
Period of Soaking	24 hours	**Date of Testing**	15/12/17

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	
A	Weight of sturated surface dry sample gm.	670	672	664	
B	Weight of oven - dry sample gm.	662	662	652	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1684	1692	1681	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.536	2.596	2.527	**2.553**
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.208	1.511	1.840	**1.520**

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.
Consultants	Tejus Consultants, Bangalore
Contractor	M/s Karthik Enterprises.

SIEVE ANALYSIS

Total Weight:	**3000** gms				
Type of Material	**Fine aggregate (River Sand/ M**		**Proposed Use**	concrete	
Sample Location	At Site/Plant		**Date of Sampli**	15/12/17	
			Date of Testing	15/12/17	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	210	210	7.00	93.00	**90 - 100**
2.36 mm	310	520	17.33	82.67	**75 - 100**
1.18 mm	450	970	32.33	67.67	**55 - 90**
0.600 mm	498	1468	48.93	51.07	**35 -59**
0.300 mm	720	2188	72.93	27.07	**8-30**
0.150 mm	650	2838	94.60	5.40	**0 - 10**
Pan	162	3000			-

Remarks : Satisfactory / Not Satisfactory

Asst Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Consultant's Representative

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TEST REPORT	
Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No:8 Kodigehalli.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Karthik Enterprises.

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	Fine aggregate (River Sand/ M sand)	**Proposed Use**	concrete
Location/Source	At Site/Plant	**Date of Sampling**	22/12/17
Period of Soaking	24 hours	**Date of Testing**	22/12/17

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	AVERAGE
A	Weight of sturated surface dry sample gm.	686	673	669	
B	Weight of oven - dry sample gm.	676	663	659	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1684	1692	1681	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.440	2.590	2.506	**2.512**
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.479	1.508	1.517	**1.502**

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Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.
Consultants	Tejus Consultants, Bangalore
Contractor	M/s Karthik Enterprises.

SIEVE ANALYSIS

Total Weight:	**3000** gms				
Type of Material	**Fine aggregate (River Sand/ M**		**Proposed Use**	concrete	
Sample Location	At Site/Plant		**Date of Sampli**	22/12/17	
			Date of Testing	22/12/17	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	212	212	7.07	92.93	**90 - 100**
2.36 mm	315	527	17.57	82.43	**75 - 100**
1.18 mm	432	959	31.97	68.03	**55 - 90**
0.600 mm	482	1441	48.03	51.97	**35 -59**
0.300 mm	730	2171	72.37	27.63	**8-30**
0.150 mm	648	2819	93.97	6.03	**0 - 10**
Pan	181	3000			-

Remarks : Satisfactory / Not Satisfactory

Consultant's Representative

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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TEST REPORT		
Clients	Bruhat Bangalore Mahanagara Palike	
Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.	
Consultants	TEJUS CONSULTANTS	
Contractor	M/s Karthik Enterprises.	
Total Weight:	10000	gms

SIEVE ANALYSIS

Type of Material	12.5 mm down size		**Proposed Use**	PCC	
Sample Location	At Site/Plant		**Date of**	22/12/2017	
			Date of Testing	22/12/17	
IS Sieve Size (in mm)	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing**
20.0	0	0	0	100	**100**
12.5	540	540	5.40	94.60	**90-100**
10.0	3250	3790	37.90	62.10	**40-85**
4.75	5780	9570	95.70	4.30	**0-10**
Pan	430	10000			

Remarks :	Satisfactory / Not Satisfactory

Consultant's Representative

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Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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CONSULTANTS

Test Report on Cement

Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Karthik Enterprises.
Sample ID	Cement
Date of Sample	22/12/17
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	39 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	335 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	3mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	

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Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

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TEST REPORT					
Clients	Bruhat Bangalore Mahanagara Palike				
Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.				
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore				
Contractor	M/s Karthik Enterprises.				
Total Weight:	10000	gms			
SIEVE ANALYSIS					
Type of Material	20 mm down size		**Proposed Use**	PCC	
Sample Location	Plant/At site		**Date of Sampling**	22/12/17	
			Date of Testing	22/12/17	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing**
40.00 mm	0	0	0	100	**100**
20.00 mm	275	275	2.75	97.25	**95 - 100**
10.00 mm	4810	5085	50.85	49.15	**25 - 55**
4.75 mm	4320	9405	94.05	5.95	**0 - 10**
Pan	595	10000			
Remarks :			Satisfactory / Not Satisfactory		

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Consultant's Representative

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Test report on Compressive strength of concrete cubes

Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Karthik Enterprises.
Grade of concrete:	M20
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	29/12/17	05/12/17	7 days	8.175	22500	302	13.42	13.63
2	29/12/17	05/12/17	7 days	8.165	22500	308	13.69	
3	29/12/17	05/12/17	7 days	8.182	22500	310	13.78	

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Yelahanka Zone, B.B.M.P.,
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Test report on Compressive strength of concrete cubes

Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Karthik Enterprises.
Grade of concrete:	M20
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	29/12/17	26/1/17	28 days	8.251	22500	462	20.53	20.61
2	29/12/17	26/1/17	28 days	8.274	22500	461	20.49	
3	29/12/17	26/1/17	28 days	8.280	22500	468	20.80	

Assistant Executive Engineer,
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Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS CONSULTANTS

Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/s Karthik Enterprises

AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Proposed Use	DBM	Date of Sampling	11/01/2018
Sample Locatio	At plant	Date of Testing	11/01/2018

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	345.00	350.00	345.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	276.00	280.00	272.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	69.00	70.00	73.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	20.00	20.00	21.16	
5	Average Aggregate impact value	(%)	20.39			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Consultant's Representative

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P.
Bangalore.

Project	Improvements to Road,Drain and Footpath in Lottegollahalli main road and cross roads in ward No.8 Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/s Karthik Enterprises

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	DBM	Proposed Use	DBM
Sample Location	At plant	Date of Sampling	11/01/2018
		Date of Testing	11/01/2018

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	8120	1022	7098	452
31.5	25.0	4598	560	4038	310
25.0	20.0	2420	510	1910	256
20.0	16.0	1286	264	1022	242
16.0	12.5	782	260	522	96
12.5	10.0	346	82	264	58
10.0	6.3	106	40	66	38
Total		**17658**	**2738**	**14920**	**1452**

Results

Flakiness Index(%):	15.51
Elongation Index(%):	9.73
Combined FI+EL (%)	25.24

4.6.18

Executive Engineer
Sub Division
Zone, B.B.M.P.,
Bangalore.

4-1-18

Consultant's Representative